NATIONAL WEATHER SERVICE WESTERN REGION SUPPLEMENT 23
TO INSTRUCTION 10-503
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Operations and Services
Public Weather Services, NWSPD 10-5
WFO Public Weather Products Specification, NWSI 10-503

WESTERN REGION PUBLIC WEATHER PRODUCTS

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SUMMARY OF REVISIONS: This supplement supersedes the following Western Region ROMLS:

WR14-89, "State and Extended Forecast Schedules", dated October 29, 1989
WR12-01, "Area Forecast Discussions (AFD)", dated September 05, 2001
WR03-02, "Zone Forecast Guidance (ZFP)", dated March 01, 2002

Signed 12/23/03
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1. Description. This supplement provides guidance for WR forecasters in addition to the product specifications contained in NWSI 10-503. It refines specifications to meet the particular needs of WR forecasters and customers while maintaining national consistency. For product examples, please refer to 10-503, Appendix A.

1.1 Product Preparation. To the extent possible, public products contained in this supplement should be formatted directly from forecaster-prepared grids in the Interactive Forecast Preparation System (IFPS), with the exception of the Area Forecast Discussion (AFD). Editing of the text products to correct format or grammatical errors can be done after initial formatting by the software. Editing of the text to meet individual forecaster preference should not occur. The goal of IFPS is to allow the forecaster to focus on meteorology (preparing grids) rather than on words (preparing text). If formatters are not producing adequate text, check local configurations to make sure the software is operating as designed; if the problem is with the national software, forward recommendations to Western Region MSD or through national teams, as appropriate.

1.2 Collaboration and Coordination. The IFPS grids used to produce the text products should be as uniform as possible between adjacent areas (both within a CWFA and between CWFAs). This means forecast collaboration is imperative in the forecast process. NWSI 10-506 contains definitions of both collaboration (building consensus) and coordination (communicating). As the NWS continues to work with the gridded forecast process, improved methods of collaborating will be developed.

2. Zone Forecast Product (ZFP). The following guidelines are to be used in addition to the specifications in section 2 of 10-503.

2.1 Format.

2.1.1 Combining Periods. Periods may be combined (after the first period) during times where weather elements are similar in order to shorten product length and reduce unnecessary text. WR does not strictly define "similar weather elements"; WFOs are authorized to make that determination. It is recommended that thresholds for combining be more strict early in the forecast period (days 2-3), and more general later in the period (days 4-7). For example, periods could be combined if max/min temperatures are within 3-5 degrees in days 2-3, or within 5-10 degrees in days 4-7. Sky condition thresholds should be within one category of each other; POPs should be within the same qualifying term in order to be combined.

Zones with similar weather conditions, as determined locally, may be combined into discrete zone blocks within the ZFP product.

2.1.2 Spot Temperature/POP table. WR WFOs may include a table of spot temperatures and POPs for specific locations within a zone. This table will follow the text forecast section of the forecast. WFOs will use "&&", on its own line above the table, to signify the start of the spot temperature/POP table (see 10-1701 for more information about the use of "&&"). The ".<" symbol will not be used for this purpose. If the spot temp/POP table is included, a statement defining the time periods of the table will be included before the first zone segment. The table

generally will include five or six periods, but can be shorter or longer depending on local requirements.

2.1.3 End-of-Report separator. Each zone or zone block will be divided by the "$$" symbol as per instructions in NWSI 10-1701 "Text Product Formats and Codes". In addition, the "=" symbol may be placed on its own line either before or after the "$$" to cause a natural breakpoint in the event the total size of the ZFP product goes over 15,000 characters.

2.2 Content.

2.2.1 Headlines. Include appropriate headlines that highlight either long fused watches/ warnings/advisories or expected significant weather, such as major changes, first events of a season, near-record temperatures, etc. The time period included in the headline may be general or detailed; for example, you may use either "through tonight" or "until 6 am Tuesday" as desired.

Hydrologic events such as flood watches or long-fused flood warnings should also be included in headlines. Instead of individual headlines, the following statement may be used before the first zone segment, especially during an event which includes multiple watches and warnings: "...FLOOD WATCHES (AND/OR) WARNINGS HAVE BEEN ISSUED FOR PORTIONS OF THE ZONE FORECAST AREA. PLEASE REFER TO THE LATEST FLOOD BULLETIN FOR DETAILS...". Using this statement can reduce confusion by the customer and reduce the number of updates to the ZFP.

2.2.2 Precipitation forecasts. Numerical POPs should be included within the body of the forecast through at least the first five periods, or they may be included in the optional spot temp/POP section. The minimum POP threshold for including weather in the forecast should be 20 percent; dry thunderstorms may be included in the forecast when POPs are as low as 10 percent. A numerical POP value is not required in areas of complex terrain where POP values typically vary greatly over short distances (i.e., mountain zones).

After period five (or the final period included in the spot temp/POP section), precipitation forecasts may be expressed in qualifying or areal terms as defined in 10-503, Section 2.3.5.3, Table 1. Additional areal terms such as "patchy", "areas of", and "widespread" may be used for stratiform precipitation events.

When including a single POP in combined periods, that POP is representative of each 12 hour period, not the entire combined period of time.

2.2.3 Snow forecasts. WR WFOs are encouraged to use snow levels in both headlines and in the body of the forecast to more accurately describe snow forecasts within a zone that has large elevation differences. Snow levels should be used when elevation is the major factor in determining rain vs. snow, or for differing amounts of snow.

Snow totals may be included in headlines in addition to the body of the forecast. The totals should be included for any event expected to end by the 3rd period.

2.2.4 Temperature forecasts. Many WR forecast zones have climatologically large temperature variations within the zone, often due to topographical or marine influences. Because of this, WR WFOs may use temperature ranges greater than 10 degrees within a zone, if necessary to accurately describe conditions. If temperatures will vary beyond 10 to 15 degrees, forecasters should provide some spatial detail in how the temperatures will vary (e.g.: MID 60S AT THE BEACHES TO MID 80S INLAND; UPPER 20S IN SHELTERED AREAS TO LOWER 40S DOWNTOWN).

Wind chill and heat index values will be included in the forecast at any location when advisory, watch, or warning criteria are met. They should also be included for non-warning events when considered locally significant.

For mountain zones, freezing levels may be included in lieu of snow levels when precipitation is not forecast.

2.2.5 Wind forecasts. Wind forecasts do not need to be included in mountain zones unless considered locally significant (in most cases, sustained $\geq$ 25 mph and/or frequent gusts $\geq$40 mph). When combining periods, wind forecasts may be preceded by descriptors such as "daytime" or "afternoon" to better describe significant winds without implying that they continue throughout the period. The descriptive terms in 10-503, Section 2.3.5.6, Table 4 may be altered as necessary for climatologically windy areas; in these places, it may not be considered "windy" until speeds reach 35 mph or more.

3. Area Forecast Matrices (AFM). The AFM is an optional product in WR. If used, the matrices will be generated directly from IFPS grids by formatters and should not require any manual editing. Because the matrices are defined to represent an entire zone and most WR zones are not well-represented by a single number for a given parameter, it is expected that AFMs will not be issued for most WR zones.

4. Point Forecast Matrices (PFM). The PFM is a required product for all WR WFOs. At a minimum, it must be produced for all national verification points within a CWFA; it is recommended for other significant cities or locations as well. The PFM will replace the Coded Cities Forecast (CCF) as input for national verification in 2004. All PFM sites will be verified nationally, thus all PFM sites should have a verifiable observation available in AWIPS. If two PFM sites reside within a single forecast zone, issue them separately with their own sets of UGC codes, separated by "$$".

5. Area Forecast Discussion (AFD). The AFD is a semi-technical explanation of forecast reasoning that is widely used by the media, emergency management, and general public. It is also a coordination tool used by WFOs, RFCs, and NCEP. The AFD will not contain unprofessional or personal messages.

5.1 Issuance Criteria. The AFD will be issued a minimum of twice per day, concurrent with the required ZFP issuance times. Other scheduled AFDs may be issued as determined by the WFO; updated AFDs should be issued whenever the ZFP is updated with major changes from the previous forecast.

5.2 Format.

5.2.1 Title. The MND Product Type must be "Area Forecast Discussion" without a geographic description. A geographic description line (such as "Southeast Arizona Forecast Discussion") may be added before the narrative section.

5.2.2 Narrative. The AFD is divided into sections that make it easy for the reader to find the discussion of interest.

5.2.2.1 Mandatory Topic Dividers. One of two mandatory formats will be used, titled:

.DISCUSSION...

or

.SHORT TERM... and .LONG TERM...

If the .SHORT TERM/.LONG TERM format is used, no optional topic dividers may be placed between them. The "&&" symbol will not be used between ".SHORT TERM" and ".LONG TERM".

5.2.2.2 Optional Topic Dividers. The AFD may also include one or more optional topic dividers as specified in 10-503, Section 5.3.5.a. The "&&" will be used to separate the mandatory topic dividers from the optional topic dividers, and to separate multiple optional topic dividers.

Many WR WFOs use the optional topic divider ".SYNOPSIS...", which is reproduced on NOAA Weather Radio or displayed on the internet along with the ZFP. This ".SYNOPSIS..." section may be placed *before* the .DISCUSSION or .SHORT TERM/LONG TERM sections described above, separated by the "&&" symbol.

5.2.2.3 Watch/Warning/Advisory (W/W/A) Block. The topics above will be followed by the W/W/A block as specified in 10-503, Section 5.3.5.b. The W/W/A block should include all long term watch/warning/advisories that are in effect or will shortly be issued, including hydrology products issued by the WFO. WATCHES for severe thunderstorms, tornados, and flash floods should be included. Additional information, such as radar or other equipment status, may be added to this block.

5.2.2.4 Example Narrative Formats. A few common formats used by WR offices are shown below (content and blank lines following && symbols removed):

a.

```
.SYNOPSIS...
&&
.DISCUSSION...
&&
.PRELIMINARY POINT TEMPS/POPS...
&&
.XXX WATCH/WARNING/ADVISORIES...
&&
$$
```

b.

```
.DISCUSSION...
&&
.FIRE WEATHER...
&&
.AVIATION...
&&
.PRELIMINARY POINT TEMPS/POPS...
&&
.XXX WATCH/WARNING/ADVISORIES...
&&
$$
```

c.

```
.SYNOPSIS...
&&
.SHORT TERM...
.LONG TERM...
&&
.MARINE...
&&
.XXX WATCH/WARNING/ADVISORIES...
&&
$$
```

6. State Forecast Product (SFP). The SFP is an optional statewide narrative forecast, issued where required by local or state customers. In states where a requirement exists, the SFP should be issued by the State Liaison WFO (SLO), based on IFPS grids produced by WFOs with CWFA responsibility within that state. The SFP will be very general and concise, with details left to other forecast products and gridded output.

6.1 Headlines. Headlines should be included for all applicable long-fused watches/warnings/ advisories, including flood watches and warnings. A statement as defined in section 2.2.1 may be used in lieu of individual hydrologic event headlines. Headlines should include the "what, where, when" of the applicable watch/warning/advisory. However, updating the SFP to add or remove headlines will be the lowest priority among updating text products.

6.2 Combining Periods. After the first period of the forecast, any or all subsequent periods may be combined if conditions are similar. There is no set criteria for defining similar conditions; because the SFP is already a general forecast, the WFO may be more liberal in combining periods in the SFP than the ZFP.

7. Tabular State Forecast (SFT). The SFT is a mandatory tabular product giving forecast weather parameters at specified points within a CWFA or state. The points will be determined by the WFO issuing the product; they should include significant cities, towns, and/or other popular locations within the CWFA. Each WFO will issue an SFT for their CWFA (AWIPS ID "SFTxxx" where xxx is the modernized WFO ID). In addition, SLOs may issue a statewide SFT for their state (AWIPS ID "SFTxx" where xx is the two-letter state abbreviation) if there is customer demand for it. The SFT will be generated by formatters from IFPS grids, with no manual editing necessary.

7.1 Content. WFOs may not include abbreviations or other content in the SFT that are not explicitly covered in 10-503. Suggestions for additions or changes to standard SFT format and content should be forwarded to WR MSD for possible inclusion in an update to 10-503.

7.1.1 Predominant Daytime Weather. Predominant daytime weather, for the purpose of the SFT, should be the sky condition if the POP is below 50 percent, or the precipitation type if the POP is at least 50 percent. The POP threshold may be adjusted downward to as low as 30 percent for climatologically dry areas. However, all SFT locations within a state should use the same POP threshold. Regardless of the threshold, "TSTRMS" may also be used for dry thunderstorms whenever their coverage is expected to be scattered or greater, even though POPs may be low.